

Innovative Housing Grants Program

MICROCOMPUTER JOB COSTING, ESTIMATING AND ACCOUNTING FOR THE HOUSING INDUSTRY

ABACUS II SOFTWARE PROGRAM
developed by
Comsoft Computer Software Inc.

INTRODUCTION

This project was undertaken to develop an integrated software package that would assist home builders and other small to medium-sized businesses in estimating, managing and accounting for their operations. This application is the result of the rapid advance of micro-computer technology which enables complex tasks to be carried out which, until recently, required expensive mini or mainframe computers.

OVERVIEW

The job costing, estimating and accounting system developed under this project is fully integrated (i.e., any transaction entered that affects other areas of the accounting system is automatically directed to those other areas). The major features of the program are:

- multi-user capabilities utilizing MS-DOS standard local area networks;
- labour tracking integrated with a Canadian payroll system;

- material tracking through accounts payable;
- vendor holdback recording;
- estimating and budgeting capabilities ranging from the job level down to material costs of assembly components; and
- basic scheduling capabilities.

SOFTWARE DEVELOPMENT TOOLS

The accounting system utilizes the dBase III[™] file standard - chosen for its prevalence in the micro-computer user community and its support of a highly productive fourth generation computer language. Basic logical flow is written in dBase III[™] and compiled with Nantucket's Clipper[™] compiler. The user interface (between keyboard and screen) is written in high speed Assembler language and linked with the compiled dBase modules.

DESIGN FEATURES

The system was designed in conjunction with selected beta test users in the Edmonton housing and general construction industry.

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User suggestions were incorporated throughout the software development process, depending on their global applicability. In some cases, interaction with users led to a complete revamping of the methods used. Abacus II includes the following features that are considered "user friendly":

- pulldown menu system;
- "point and shoot" technology allowing use of a mouse;
- standardized function key procedures;
- clean and clear screen displays and reports;
- use of colour to complement the screen layouts;
- standardized screen displays and operation;
- "windows" for help and ancillary data entry;
- high speed screen displays;
- backup and restore facilities; and
- record and file locking in multi-user environments.

SYSTEM FEATURES

- System security on two levels (access to the program and access to each individual Abacus module).
- On-line help on two levels (general textual displays describing procedures and context-sensitive help tied to specific screen fields).
- Standardized error and message reporting.

SYSTEM LOGICAL FEATURES

- Setup requirements include supplying general information about the hardware environment, company organization, forms design, and a definition of all general ledger accounts affected by the integration aspects of the system (e.g., define accounts receivable control account for automatic posting to the general ledger from the accounts receivable module).
- The following master files must be set up prior to the first transaction entry:
 - General Ledger
 - Customers
 - Vendors
 - Employees
 - Inventory
 - Inventory Assemblies
 - Jobs
- The job subsystem consists of three related files: the job master definition (one record), the job phase structure (one record for each phase and sub-phase that is to be included in the job), and the job subledger which contains all accounting transactions posted to the job. The job phase records hold fields for estimates and actual values posted to the job. Jobs may be viewed and reported on any of the three levels. Figure 1 illustrates two typical computer screens showing a job phase structure and costing system.

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Jobs on File

Job Code	Job Title	Cust #	Status
SHED	GARDEN SHED	MARTHA	

Phase	Description	Estimated	Actual
001.000	GARDEN SHED 8 X 16		
002.000	FOUNDATION	259.00	0.00
002.100	FRAMING		
002.100	Framing Materials	757.44	0.00
003.000	ROOF		
003.100	Roof Materials	496.52	0.00
004.000	DOOR	120.30	0.00
005.000	TRIM	148.00	0.00
006.000	PAINTING		
006.100	Painting Materials	143.00	0.00
006.200	Painting Labour	60.00	0.00
007.000	FINISHING	0.00	0.00

Help 2Edit 3Add 4Delete 5Print 6Status 7Invent 8A/c 9 10Exit

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ABACUS Job Create/Edit 1/3

Job Code SHED

Job Title GARDEN SHED

Cust # MARTHA

Status

Cu	Abacus Job Create/Edit	1985.06	Job Start Date 04/17/89
	Estimated Cost	1985.06	Estimated End 04/22/89
De	Actual Cost	0.00	Actual End Date / /
	Cost to Complete ...	1975.06	Last Service
	% Complete	0.00	
Lo	Quoted Price	2400.00	Deposit Received ...
	Billed	0.00	Billing Received ...
	Remaining	2500.00	Amount Owng

Help 2 3Print 4Exit 5 6 7 8A/c 9 10Exit

FIGURE 1: Examples of Screen Displays for the Job Phase Structure and Costing System

- ° Transactions are entered in batches and are identified as to journal type and the user that created them. Journal transactions are saved in sub-ledgers:
 - ° General Journal Subledger
 - ° Cash Receipts Subledger
 - ° Cash Disbursements Subledger
 - ° Accounts Receivable Subledger
 - ° Accounts Payable Subledger
 - ° Job Subledger
 - ° Payroll Subledger
- ° All journal posting routines have the following characteristics:
 - ° General ledger summary transactions are created from the batch, saved in a master ledger transaction file, and posted to the general ledger.
 - ° Integration aspects of the journal are processed (e.g., if the record is to be directed at the job subledger, it is added to that subledger and all appropriate master file statistics are updated).
 - ° Journal transactions are appended to the appropriate subledger.